

## CLAIMS

### **We Claim:**

1. A fabric laminate comprising at least a first fabric, a second fabric and a heat sensitive adhesive layer; the adhesive layer pre-laminated on the first fabric in the form of a film tacked on the first fabric by application of pressure and temperature less than that required for lamination followed by placement of the adhesive layer between opposed surfaces of the first and second fabrics for adhesively securing said first and second fabrics together along their opposed surfaces in a lamination step by positioning the second fabric on the pre-laminated first fabric and applying sufficient pressure and temperature.
2. The fabric laminate of claim 1 further including a woven moldable stretch fabric suitable for bubble molding a cup by application of sufficient heat and pressure to an identified area of the fabric laminate.
3. The fabric laminate of claim 2 wherein the woven stretch fabric material is a synthetic fabric.
4. The fabric laminate of claim 1 further including at least one cup.
5. The fabric laminate of claim 1 further having a plurality of edges wherein at least one edge from the plurality of edges has a laminated finish following a die-cutting operation, wherein furthermore, the laminated finish does not require additional finishing with the aid of sewing.
6. The fabric laminate of claim 5 wherein the at least one edge having a laminated finish is treated with a hot surface following the die-cutting operation to smooth out fraying fibers created by the die-cutting operation.
7. The fabric laminate of claim 1 further including a plurality of openings wherein at least one opening from the plurality of openings is suitable for placing therein at least one member of the set consisting of a human arm, a human shoulder, a human torso, a human thigh, a human neck, and a human leg.
8. The fabric laminate of claim 1 wherein the adhesive layer is a film having a thickness of less than or equal to about 20 mil.
9. The fabric laminate of claim 8 wherein the thickness of the adhesive layer is between about 0.5 mil and about 20 mil.

10. The fabric laminate of claim 9 wherein the thickness of the adhesive layer is between about 0.5 mil and about 2.0 mil.
11. The fabric laminate of claim 10 wherein the thickness of the adhesive layer is between about 1.0 mil and about 1.5 mil.
12. The fabric laminate of claim 8 wherein the thickness of the adhesive layer is about 4.0 mil.
13. The fabric laminate of claim 8 wherein the thickness of the adhesive layer is about 6.0 mil.
14. The fabric laminate of claim 1 wherein the adhesive layer comprises ether-based polyurethane.
15. The fabric laminate of claim 14 wherein the adhesive layer comprises at least 50% ether-based polyurethane.
16. The fabric laminate of claim 15 wherein the adhesive layer comprises at least 90% ether-based polyurethane.
17. The fabric laminate of claim 16 wherein the adhesive layer comprises at least 99% ether-based polyurethane.
18. The fabric laminate of claim 1 wherein the adhesive layer comprises treated ester-based polyurethane.
19. The fabric laminate of claim 18 wherein the adhesive layer comprises at least 50% ester-based polyurethane.
20. The fabric laminate of claim 19 wherein the adhesive layer comprises at least 90% ester-based polyurethane.
21. The fabric laminate of claim 20 wherein the adhesive layer comprises at least 99% ester-based polyurethane.
22. The fabric laminate of claim 1 wherein the adhesive layer has a hydrolytic stability of at least 740 days.
23. The fabric laminate of claim 1 wherein the adhesive layer has a hydrolytic stability of at least 1000 days.
24. The fabric laminate of claim 1 wherein the adhesive layer has a hydrolytic stability of at least 5000 days.
25. The fabric laminate of claim 1 further including at least one insert held between the prelaminated first fabric and the second fabric by sandwiching the at least one insert between the first fabric and the second fabric followed by lamination of the first

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26. The fabric laminate of claim 25 wherein the at least one insert is a wire shaped to provide support to at least one breast of a wearer of a garment.
27. A brassiere for providing support to at least one breast of a wearer, the brassier comprising:
  - at least two layers that are laminated together by an adhesive layer between them by application of heat and pressure;
  - a third layer of woven, stretch fabric placed in an area suitable for bubble molding such that the third layer, having an adhesive layer prelaminated thereon, is sandwiched between the at least two layers;
  - at least one cup formed by a bubble molding process such that the at least two layers and the third layer in the area suitable for bubble molding are shaped into a cup having a desired size by the application of pressure via a bubble molding setup; and
  - at least one unsewn edge finished by lamination only whereby eliminating look and feel of a sewn finish
28. The brassiere of claim 27 further having at least one strap cushioned by laminating a woven, stretch fabric between the at least two layers in an area suitable for forming a strap.
29. The brassiere of claim 27 wherein the adhesive layer is applied to one of the at least two layers in a prelaminating step at a temperature and pressure to make the adhesive layer tacky without melting followed by contacting another layer of the at least two layers to the prelaminated layer and laminating at sufficient temperature and pressure to melt the adhesive into the fibers of the at least two layers.
30. The brassier of claim 27 further including at least one wire in association with the at least one cup.
31. The brassiere of claim 27 wherein the at least one cup provides hanger appeal by substantially retaining its shape without requiring a filler or support material.
32. The brassiere of claim 27 wherein the adhesive layer has a thickness of less than or equal to about 20 mil.
33. The brassiere of claim 32 wherein the thickness of the adhesive layer is between about 0.5 mil and about 2.0 mil.
34. The brassiere of claim 33 wherein the thickness of the adhesive layer is between about 1.0 mil and about 1.5 mil.

35. The fabric laminate of claim 27 wherein the adhesive layer comprises ether-based polyurethane.
36. The brassiere of claim 35 wherein the adhesive layer comprises at least 50% ether-based polyurethane.
37. The brassiere of claim 35 wherein the adhesive layer comprises at least 90% ether-based polyurethane.
38. The brassiere of claim 36 wherein the adhesive layer comprises at least 99% ether-based polyurethane.
39. The brassiere of claim 27 wherein the adhesive layer comprises treated ester-based polyurethane.
40. The brassiere of claim 39 wherein the adhesive layer comprises at least 50% ester-based polyurethane.
41. The brassiere of claim 39 wherein the adhesive layer comprises at least 90% ester-based polyurethane.
42. The brassiere of claim 39 wherein the adhesive layer comprises at least 99% ester-based polyurethane.
43. The brassiere of claim 27 wherein the adhesive layer has a hydrolytic stability of at least 740 days.
44. The brassiere of claim 27 wherein the adhesive layer has a hydrolytic stability of at least 1000 days.
45. The brassiere of claim 27 wherein the adhesive layer has a hydrolytic stability of at least 5000 days.
46. The brassier of claim 27 wherein the cup size is at least A and at the most D.
47. The brassiere of claim 46 further being part of a matched set of undergarments including at least one pair of panties.
48. An insert for providing support to a brassiere by providing support and defining to at least two cups placed in the brassiere, the insert comprising:  
a bottom layer that is initially prelaminated with an adhesive layer by contacting them at a temperature and pressure that is not sufficient to completely melt the adhesive;  
a set of precisely placed wire inserts to define the separation between the cups in a brassiere;  
a top layer, made from a stretch resistant fabric, placed on the prelaminated side of the bottom layer so as to sandwich the wire inserts between the top and the bottom

layers following lamination of the top and bottom layers by application of a pressure and temperature sufficient to melt the adhesive for a prescribed cycle time; and a shape formed by diecutting the laminated top and bottom layers to yield the insert having two appropriately spaced apart wires.

49. A method of manufacturing a laminated garment, the method comprising the steps of:
- determining a melt temperature of an adhesive layer;
  - selecting a tacking temperature below the melt temperature;
  - placing the adhesive layer on a first fabric layer;
  - applying a tacking pressure and the tacking temperature to the adhesive layer and the first fabric layer to generate a first prelaminated fabric layer;
  - placing the first prelaminated fabric layer against a second fabric layer in a defined area such that the adhesive layer is between the first fabric layer and the second fabric layer to form a sandwich in the defined area;
  - applying a lamination pressure for a pressure cycle time to the sandwich;
  - applying a lamination temperature for a temperature cycle time to the sandwich such that the lamination temperature is not less than the melt temperature of the adhesive layer; and
  - shaping the laminated garment.
50. A method for manufacturing a laminated garment of claim 49 further including the step of diecutting the laminated sandwich to shape the laminated garment.
51. A method for manufacturing a laminated garment of claim 50 further including the step of finishing the edges following the step of diecutting with a hot surface to contain fraying fibers generated by the diecutting step.
52. A method for manufacturing a laminated garment of claim 49 wherein the pressure cycle time and the temperature cycle time are synchronized.
53. A method for manufacturing a laminated garment of claim 49 wherein the pressure cycle time and the temperature cycle time are not synchronized.
54. A method for manufacturing a laminated garment of claim 49 further including the step of selecting a hydrolysis resistant adhesive for the adhesive layer such that the adhesive has a hydrolysis stability of at least 740 days.
55. A method for manufacturing a laminated garment of claim 49 further including the step of selecting a hydrolysis resistant adhesive for the adhesive layer such that the

adhesive has a hydrolysis stability of at least 1000 days.

56. A method for manufacturing a laminated garment of claim 49 further including the step of selecting a hydrolysis resistant adhesive for the adhesive layer such that the adhesive has a hydrolysis stability of at least 5000 days.
57. A method for manufacturing a laminated garment of claim 49 further including the step of selecting an ether-based polyurethane adhesive for the adhesive layer such that the adhesive comprises at least 50% ether-based polyurethane.
58. A method for manufacturing a laminated garment of claim 49 further including the step of selecting an ether-based polyurethane adhesive for the adhesive layer such that the adhesive comprises at least 90% ether-based polyurethane.
59. A method for manufacturing a laminated garment of claim 49 further including the step of selecting an ether-based polyurethane adhesive for the adhesive layer such that the adhesive comprises at least 99% ether-based polyurethane.
60. A method for manufacturing a laminated garment of claim 49 further including the step of selecting a treated ester-based polyurethane adhesive exhibiting substantially higher resistance water damage than untreated ester-based polyurethane.
61. A method for manufacturing a laminated garment of claim 49 wherein the first fabric layer and the second fabric layer have an additional fabric layer between them outside of the defined area.
62. A method for manufacturing a laminated garment of claim 49 wherein the additional fabric layer is prelaminated with the adhesive layer.
63. A method of molding a cup in a laminated garment, the method comprising the steps of:
- placing a woven moldable stretch fabric between a prelaminated first fabric, the prelaminated first fabric having tacked on a first fabric a layer of adhesive, and a second fabric to create a pre-bubble mold assembly;
- laminating the pre-bubble mold assembly by applying sufficient pressure and temperature for a cycle time;
- placing the laminated pre-bubble mold assembly in a bubble molding assembly between padded holding first and second plates; and
- applying heat in a bin connected to the first plate via a first hole; and applying heat and pressure via a plunger pressed through an opening aligned with a second hole in the second plate that is aligned with the first hole.

64. The method of molding a cup in a laminated garment of claim 63 further comprising the step of selecting a plunger shape corresponding to a desired size and shape for the cup.
65. The method of molding a cup in a laminated garment of claim 63 wherein the plunger creates a cup size less than a D size.
66. The method of molding a cup in a laminated garment of claim 63 wherein the plunger creates a cup size of at least an A size.
67. The method of molding a cup in a laminated garment of claim 63 further comprising shaping, prior to bubble molding, the woven moldable stretch fabric to have an embossed trim just inside a bustline corresponding to the cup.
68. The method of molding a cup in a laminated garment of claim 63 further comprising shaping, prior to bubble molding, the woven moldable stretch fabric with an ornamentally shaped die.
69. The method of molding a cup in a laminated garment of claim 68 wherein the die is scalloped.
70. The method of molding a cup in a laminated garment of claim 63 further comprising shaping, prior to bubble molding, the woven moldable stretch fabric to form a slot.
71. The method of molding a cup in a laminated garment of claim 70 further comprising shaping, prior to bubble molding, the woven moldable stretch fabric slot to receive a wire insert adjacent to the woven moldable stretch fabric.
72. The method of molding a cup in a laminated garment of claim 71 wherein the woven moldable stretch fabric is a spacer fabric shaped to adjacently receive a center-front stabilizer channelling.
73. The method of molding a cup in a laminated garment of claim 71 wherein the woven moldable stretch fabric is a spacer fabric shaped to adjacently receive a channeling.